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Case report

Gunshot goes gastric: A case report

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1. Introduction

A 6-year-old boy from Cape Town sustained a single gunshot wound to the chest. He was walking into the local tuck shop when he was shot at close range by a stray bullet from a robbery taking place inside. The bullet entered the left side of the chest at the 6th intercostal space, anterior axillary line. There was no exit wound.

2. Case report

He was brought by ambulance to the Red Cross War Memorial Children's Hospital. Physical examination revealed a small wound on the chest with no oozing or sucking and little blood. There was decreased air entry in the left lung base and a raised respiratory rate (28), but oxygen saturation remained steady at 99%. Heart sounds were not muffled, GCS 15/15 with no neurology and the abdomen was soft without distension but diffusely tender. No bullet was felt.

Using full body radiography (Lodox Statscan Fig. 1) the bullet was visualised in the abdominal cavity. The stomach appeared distended, suggesting intra-abdominal injury. A computerised tomography scan of the chest and abdomen revealed a left lower lobe contusion, and the radiologist reported that the 'bullet migrated in serial studies, but trajectory is not clear'. The boy's condition remained stable and the decision was made to perform a diagnostic laparoscopy the next day.

In theatre an open Hasson technique was utilised, with one 5 mm umbilical port and two 5 mm ports under direct vision. A hole in the diaphragm plugged with omentum was visualised and repaired with 3.0 vicryl sutures. A search for the bullet ensued, which was initially unsuccessful. Using intraoperative screening with manual bowel manipulation the bullet was found to be lying in the caecum. Prompted by this radiological finding a hole in the fundus of the stomach was then discovered, sealed off by gastric distension. This was closed with 3.0 vicryl sutures. No soiling was detected in the lesser sac or the rest of the abdominal cavity. Approximately 10 ml of blood stained fluid was drained from the pelvis. The decision was made to close, and wait for the boy to pass the bullet the natural way.

Fig. 1. Lodox Statscan.

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Four days post-op, five days after being shot, the bullet was passed in the stool. With his condition stable and bowel movements normal, the boy was discharged home and the bullet passed to the medicolegal department.

3. Discussion

A PubMed search for similar 'intestinal emboli' events yielded very few results. One post-mortem report described a bullet found in the caecum of a patient who died 18 days after receiving 3 gunshots to the abdomen.[2] Only one other case of a bullet being passed in faeces by normal peristalsis was found, also from Cape Town.[3] A 30-year-old man was shot in the left flank, the bullet passed through the extraperitoneal space and into the gastrointestinal tract without causing peritonitis or any clinical evidence of intraperitoneal injury, and without requiring surgical exploration.[3] The authors concluded that a small permanent 'cavitation effect' caused an instant seal and prevented gastrointestinal leakage, accounting for the lack of complications.[3]

There are reports of other types of bullet emboli, such as the passage of a bullet through the urinary system causing acute urinary retention[6,4] and through the oesophagus lodging in the stomach.[7] Vascular bullet emboli are more common, with one review finding 46 cases reported in a 10 year span.[5] While vascular emboli may be suspected by clinical signs such as sudden loss of pulses and unexpected peripheral ischaemia or neurology[5] the only clinical signs of 'intestinal emboli' in this case were a lack of exit wound and a tender abdomen. Radiological imaging did little to raise the index of suspicion until screening was applied in theatre.

This case also emphasises the benefits of diagnostic and therapeutic laparoscopy over laparotomy in haemodynamically stable and carefully selected trauma patients. A multicentre review of 194 abdominal gunshot wounds (all non-embolic) which underwent laparoscopy came to the same conclusion.[9] Other case reports have shown similarly successful results using therapeutic laparoscopy in abdominal trauma in children.[1,8]

In conclusion, this case highlights both the viability and benefits of laparoscopy in managing certain trauma patients, and the unusual trajectory that a bullet can take from a thoracic entry to a normal gastrointestinal faecal exit. The passage of a bullet in the intestinal system is rare, as the kinetic energy required to perforate the abdominal cavity is usually enough to pass through the intestines and lodge into the vertebral column or abdominal wall muscles.[2] A high index of suspicion is needed, and should be combined with clinical judgement and radiological imaging to make the diagnosis.

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